

Please add new claims 58-78 as follows:

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~~58. An image processing apparatus usable with an~~
external device that can transmit printing data, said image
processing apparatus comprising:

an original-reading device which reads an original
image and outputs reproduction image data based on the read
original image;

a printer;

an engine controller connected to said printer,
controlling said printer based on received image data, and
outputting a first state signal indicating a condition of
said printer;

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a reader controller connected to said original-
reading device and said engine controller, said reader
controller receiving the reproduction image data output by
said original-reading device, transmitting the reproduction
image data to said engine controller, and receiving the first
state signal output by said engine controller; and

a printer controller connected to said reader
controller and connectable to the external device, said
printer controller receiving the printing data transmitted
from the external apparatus, forming print image data from

the printing data, and transmitting the print image data to said engine controller via said reader controller,

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said reader controller selectively transmitting, depending upon a content of the received state signal, a second state signal indicating the condition of said image forming device to said printer controller.

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59. The apparatus according to claim 58, wherein whether said reader controller transmits the second state signal to said printer controller also depends upon which of the reproduction image data and the print image data is being transmitted to said engine controller.

60. The apparatus according to claim 58, wherein the condition indicated by the state signals is a change in a state of the image forming device.

61. A controller for an image forming apparatus connectable to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data transferred from the external apparatus and outputs print image data based on the printing

data, and an engine controller which controls the printer based on the reproduction image data and the print image data and which outputs a first state signal indicating a condition of the printer, said controller comprising:

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a first input port connected to the original-reading device, for receiving the reproduction image data;

a second input port connected to the printer controller, for receiving the print image data;

a third input port connected to the engine controller for receiving the first state signal;

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a selector connected to the engine controller, for selecting one of the reproduction image data received via said first input port and the print image data received via said second input port, and for relaying the selected image data to the engine controller;

transmitting means connected to the printer controller, for selectively transmitting to the printer controller a second state signal indicating the condition of the printer; and

a processor connected to the transmitting means and the selector, for controlling the selective transmission of the second state signal by said transmitting means, in accordance with a content of the state signal output by the

engine controller, and for controlling the selection of the selected image data by said selector.

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62. The controller according to claim 61, wherein said processor controls the selective transmission by said transmitting means also in accordance with a source of the selected image data.

63. The controller according to claim 61, wherein the condition indicated by the state signals is a change in a state of the printer.

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64. A control method for an image forming apparatus connected to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data transferred from the external apparatus and outputs print image data based on the printing data, and an engine controller which controls the printer based on the reproduction image data and the print image data and which outputs a first state signal indicating a condition of the printer, said method comprising the steps of:

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~~receiving the reproduction image data from the~~
original-reading device;

receiving the print image data from the printer
controller;

receiving the first state signal from the engine
controller;

selecting one of the received reproduction image
data received and the received print image data;

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relaying the selected image data to the engine
controller; and

selectively transmitting a second state signal,
indicating the condition of the image forming device, to the
printer controller in accordance with a content of the
received first state signal.

65. The method according to claim 64, wherein in
said selectively transmitting step the second state signal is
selectively transmitted to the printer controller also in
accordance with a source of the selected image data.

66. The method according to claim 64, wherein the
condition indicated by the state signals is a change in a
state of the printer.

67. ~~An image processing apparatus connectable to an external device that can transmit printing data, said image processing apparatus comprising:~~

~~a printer;~~

~~an original-reading device which outputs reproduction image data by reading an image of an original;~~

~~a printer controller for receiving the printing data transmitted by the external apparatus, forming print image data based on the printing data, outputting the print image data, and outputting a command for setting a printer operation;~~

~~an engine controller for controlling said printer based on the command, the reproduction image data and the print image data; and~~

~~a reader controller connected to said engine controller, said original-reading device and said printer controller, said reader controller receiving and relaying the reproduction image data, the print image data and the command to said engine controller,~~

~~said reader controller including a buffer in which the command is held if the command is output by said printer controller while said reader controller is relaying the reproduction image data to said engine controller, said reader controller transmitting the held command to said~~

engine controller after said reader controller completes relaying the reproduction image data to said engine controller.

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68. The apparatus according to claim 67, wherein the command is held in said buffer while said reader controller is relaying the reproduction image data only if the command causes a change in a load of said printer.

DE → 69. A controller for an image forming apparatus connectable to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data from the external apparatus and outputs (i) print image data based on the printing data and (ii) a command for setting a printer operation, and an engine controller which controls the printer based on the command, the reproduction image data and the print image data, said controller comprising:

a first input port connected to the original-reading device, for receiving the reproduction image data from the original-reading device;

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a second input port ~~connected to the printer~~
controller, for receiving the print image data and the
command from the printer controller;

a selector for selecting one of the reproduction
image data received via said first input port and the print
image data received via said second input port and relaying
the selected image data to the engine controller;

a buffer in which the command is selectively
stored; and

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a processor which selectively stores the command in
the buffer if the command is received via said second input
port while said selector is relaying the reproduction image
data to the engine controller, and which transmits the stored
command to the engine controller after said selector
completes relaying the reproduction image data to the engine
controller.

70. The apparatus according to claim 69, wherein
said processor stores the command in the buffer while said
selector is relaying the reproduction image data only if the
command causes a change in a load of the printer.

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71. A method of controlling an image forming apparatus connected to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data from the external apparatus and outputs (i) print image data based on the printing data and (ii) a command for setting a printer operation, and an engine controller which controls the printer based on the command, the reproduction image data and the print image data, said method comprising the steps of:

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receiving the reproduction image data from the original-reading device;

receiving the print image data from the printer controller;

receiving the command from the printer controller;
selecting one of the received reproduction image data and the received print image data;

relaying the selected image data to the engine controller;

holding the received command if the command is received while the received reproduction image data is being relayed to the engine controller; and

transmitting the held command to the engine controller after the received reproduction image data has been relayed to the engine controller.

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72. The method according to claim 50, wherein the command is held in said holding step only if the command causes a change in a load of the printer.

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Fig. 1
73. An image processing apparatus connectable to an external device that can transmit printing data, said image processing apparatus comprising:

a printer;

an engine controller connected to the printer, controlling the printer based on image data, and outputting a data transmission synchronization signal;

a printer controller connectable to the external device, for receiving the printing data, forming print image data from the printing data and outputting the print image data in response to the data transmission synchronization signal from said engine controller;

an original-reading device which outputs reproduction image data by reading an image of an original in response to the data transmission synchronization signal from said engine controller; and

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~~a reader controller connected to said engine controller, said original reading device and said printer controller,~~

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~~said reader controller controlling said original-reading device, receiving reproduction image from the original-reading device, receiving the print image data from said printer controller, receiving the data transmission synchronization signal from said engine controller, transmitting a selected one of the reproduction image data and the print image data to said engine controller, and selectively transmitting the data transmission synchronization signal to said printer controller when the print image data is to be transmitted to said engine controller.~~

74. The apparatus according to claim 73, wherein when there is a request to transmit the reproduction image data from said original-reading device to said engine controller while the print image data from said printer controller is being transmitted to said engine controller, said reader controller interrupts transmission of the data transmission synchronization signal to said printer controller and utilizes the data transmission synchronization signal to control said original reading device.

75. A reader controller for controlling an image forming apparatus connectable to an external apparatus that can transmit printing data, the image forming apparatus employing a printer, an engine controller which controls the printer based on image data and outputs a data transmission synchronization signal, and a printer controller which forms print image data from the printing data transferred from the external signal, the image forming apparatus being connectable to an original-reading device which outputs reproduction image data by reading an image of an original in response to the data transmission synchronization signal, said reader controller comprising:

a first input port connected to the original-reading device for receiving the reproduction image data from the original-reading device;

a second input port connected to the printer controller for receiving the print image data from the printer controller;

a third input port connected to the engine controller for receiving the data transmission synchronization signal from the engine controller;

a selector connected to the engine controller, for selecting one of the reproduction image data received via said first input port and the print image data received via

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said second input port and relaying the selected image data
to the engine controller;

a gate for selectively transmitting the data
transmission synchronization signal received from the engine
controller to said printer controller; and

a processor for controlling said original-reading
device in accordance with the data transmission
synchronization signal and for controlling said gate to
transmit the data transmission synchronization signal to said
printer controller when the print image data is to be
transmitted to the engine controller.

76. The apparatus according to claim 75, wherein
when there is a request to transmit the reproduction image
data from the original-reading device to the engine
controller while the print image data from the printer
controller is being transmitted to the engine controller,
said processor controls the gate to interrupt the
transmission of the data transmission synchronization signal
to the printer controller and utilizes the data transmission
synchronization signal to control the original-reading
device.

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77. A control method for an image forming apparatus connectable to an external apparatus that can transmit printing data, the image forming apparatus employing an printer for forming an image on a sheet, an engine controller which controls the printer based on image data and outputs a data transmission synchronization signal, and a printer controller which forms print image data from the printing data transferred from the external signal, the image forming apparatus being connectable to an original-reading device which outputs reproduction image data by reading an image of an original in response to the data transmission synchronization signal, comprising:

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receiving the reproduction image data from the original-reading device;

receiving the print image data from the printer controller;

receiving the data transmission synchronization signal from the engine controller;

selecting one of the reproduction image data received from the original-reading device and the print image data received from the printer controller;

relaying the selected image data to the engine controller;